

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
26 May 2005 (26.05.2005)

PCT

(10) International Publication Number  
**WO 2005/048251 A1**

(51) International Patent Classification<sup>7</sup>: **G11B 7/135**

(21) International Application Number:  
PCT/KR2004/000827

(22) International Filing Date: 9 April 2004 (09.04.2004)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:  
10-2003-0080924  
17 November 2003 (17.11.2003) KR

(71) Applicant (for all designated States except US): **SAM-SUNG ELECTRONICS CO., LTD.** [KR/KR]; 416, Mae-tan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do 442-742 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KIM, Bong-gi** [KR/KR]; 906-503, Byeokjeokgol 9danji Apartment, Yeongtong-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do 442-470 (KR). **HEO, Tae-young** [KR/KR]; 204-1403, Woncheon Jugong 2danji Apartment Woncheon-dong,

Paldal-gu, Suwon-si, Gyeonggi-do 442-756 (KR). **PARK, Seong-su** [KR/KR]; 611-2104, Cheongsol-maeul Jugong 6danji Apartment Jeongja 1-dong, Jangan-gu, Suwon-si, Gyeonggi-do 440-301 (KR). **PARK, Chun-seong** [KR/KR]; 321-902, Samik Apartment, Yeongtong-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do 442-470 (KR). **PARK, Soo-han** [KR/KR]; 511-901, Jinsan-maeul Sam-sung 5th Apartment, 1161, Bojeong-ri, Guseong-myeon, Yongin-si, Gyeonggi-do 449-913 (KR).

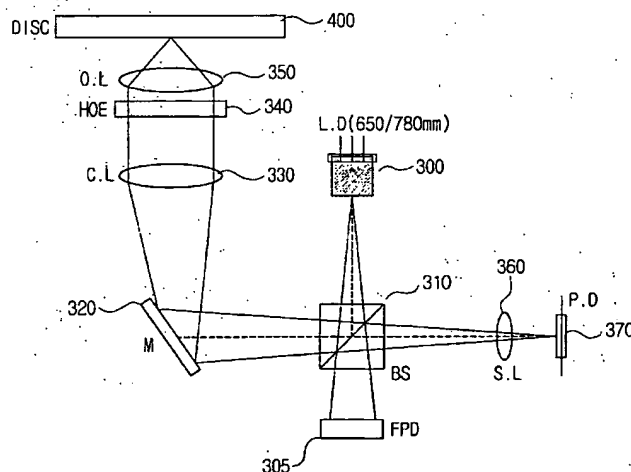
(74) Agent: **JEONG, Hong-sik**; 8Fl., Daelim Bldg., 1600-3,, Seocho-dong, Seocho-gu, Seoul 137-877 (KR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: OPTICAL PICK-UP APPARATUS FOR MULTI RECORDING/REPRODUCING



(57) Abstract: An optical pickup apparatus is compatible for recording and reproducing information on or from recording media having different formats. The optical pickup apparatus includes a dual wavelength laser diode, a hologram module for splitting a light which is incident to the recording medium, into 5 beams, and a photodetector for receiving a light beam reflected from the recording medium and detecting an information signal and a signal for servo control. The split beams each are focused on a predetermined position corresponding to a format of the recording medium. The light beams reflected from the recording medium are transmitted to and detected by a corresponding sensor of the photodetector to generate a focus error signal and a tracking error signal. Thus, the optical pickup apparatus records and reproduces information on and from DVDs having a different formats by using a hologram of a simple pattern. The simple optical structure of the optical pickup apparatus enables simple assembly and manufacture and provides signal regeneration when operating in a high temperature.

WO 2005/048251 A1



GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*